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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,505	12/22/2005	Ichihiko Takahashi	188-101	7936

7590 12/14/2006

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EXAMINER	
AHMED, SHEEBA	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/562,505	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Sheeba Ahmed	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 9/21/06.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Amendments to claim 2 have been entered in the above-identified application. New claims 21-25 have been added. **Claims 1-25 are now pending.**

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21, 24 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 21 recites that the first coating layer comprises an epoxy, urethane, acryl, nitrocellulose, silicone or modified silicone resin or mixture thereof. Similarly, claims 24 and 25 recite alternative groups reciting a mixture of the previously recited elements. However, there is no support for such a mixture. The Examiner has reviewed the original disclosure, i.e., Specification and originally filed claims, and was unable to locate any support for mixtures of the disclosed resin binders. Applicants are required to either point to specific support for this newly added limitation or cancel all new matter in response to this Office Action.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 23 and 24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 23 and 24 recite a "solvent-diluted type rubbery coating". However, the term " type" renders the claims indefinite because the claims include elements not actually disclosed (those encompassed by "type"), thereby rendering the scope of the claim(s) unascertainable. Appropriate clarification or correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 5, 9, 10, 12, 14, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bilder et al. (US 5,534,289).

Bilder et al. disclose a method for aiding in the early detection of cracks in a structure wherein the method provides a self-activating crack indication system visible to observers with minimal training and provides a non-destructive crack indication technique (Column 2, liens 27-34). The method utilizes microencapsulation using the envelopment of small solid particles, liquid droplets or glass bubbles within a coating

(Column 2, lines 38-45). The method comprises applying a coating of a fist color on the surface of the structure, said coating including microcapsules containing a second color and said microcapsules being subject to breakage upon occurrence of a crack in said structure and applying a second coating of a second color (Column 3, lines 1-15). He detailed description shows that the microcapsules comprises an oil soluble dye which are preferred because theses do not degrade the paint (Column 3, lines 45-60). All limitations of claims 1, 2, 4, 5, 9, 10, 12, and 14 are disclosed in the above reference.

5. Claims 1, 2, 4-6, 9, 10, 12, 14-16, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Crites et al. (US 3,803,485).

Crites et al. disclose a method of detecting cracks wherein the method consists of applying a coating with entrapped reservoirs or chambers to which cracks will naturally propagate. The reservoirs are filled with an electrically conductive liquid which fills the cracks by capillary action that provides an electric current path this changing the electrical characteristics of the coating and allowing one to monitor the cracking and noting the changes in electrical characteristics of the coating (column 2, lines 6-34). When a fracture appears on the surface of a metal base, it propagates inwardly into the base metal and outwardly towards the coatings. The capsules lying in the path of the crack rupture and fill the crack with the electrically conductive liquid thus providing a current path between the base and the coating. The result is that the electrical resistance of the coating drops and is reflected in the reading of an ohmmeter thus

allowing detection of the crack (Column 3, lines 10-60). All limitations of claim 1, 2, 4-6, 9, 10, 12, 14-16, 18, and 20 are disclosed in the above reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 7-14, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bilder et al. (US 5,534,289) in view of Otsuka (US 4,624,709).

Bilder et al. disclose a method for aiding in the early detection, of cracks in a structure wherein the method provides a self-activating crack indication system visible to observers with minimal training and provides a non-destructive crack indication technique (Column 2, liens 27-34). The method utilizes microencapsulation using the envelopment of small solid particles, liquid droplets or glass bubbles within a coating (Column 2, lines 38-45). The method comprises applying a coating of a fist color on the surface of the structure, said coating including microcapsules containing a second color and said microcapsules being subject to breakage upon occurrence of a crack in said structure and applying a second coating of a second color (Column 3, lines 1-15). He detailed description shows that the microcapsules comprises an oil soluble dye which are preferred because theses do not degrade the paint (Column 3, lines 45-60).

Bilder do not teach that the microcapsules contain nigrosine as the dye.

However, Otsuka discloses nigrosine dyes having a high compatibility with organic resins and solvents and that can be used as a charge control agent due to its electrostatic characteristics. The nigrosine dyes can be used as providing high concentration dyeing solutions and providing pigment compositions (Column 2, lines 28-37).

Accordingly, it would have been obvious to use nigrosine as the dye in the microcapsules and to optimize the amount of dye used in the microcapsules given that the higher the concentration of the dye in the microcapsule the better the detection of the crack.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crites et al. (US 3,803,485) in view of Otsuka (US 4,624,709).

Crites et al. disclose a method of detecting cracks wherein the method consists of applying a coating with entrapped reservoirs or chambers to which cracks will naturally propagate. The reservoirs are filled with an electrically conductive liquid which fills the cracks by capillary action that provides an electric current path this changing the electrical characteristics of the coating and allowing one to monitor the cracking and noting the changes in electrical characteristics of the coating (column 2, lines 6-34). When a fracture appears on the surface of a metal base, it propagates inwardly into the base metal and outwardly towards the coatings. The capsules lying in the path of the crack rupture and fill the crack with the electrically conductive liquid thus providing a current path between the base and the coating. The result is that the electrical

resistance of the coating drops and is reflected in the reading of an ohmmeter thus allowing detection of the crack (Column 3, lines 10-60).

Crites do not teach that the microcapsules contain nigrosine as the dye.

However, Otsuka discloses nigrosine dyes having a high compatibility with organic resins and solvents and that can be used as a charge control agent due to its electrostatic characteristics. The nigrosine dyes can be used as providing high concentration dyeing solutions and providing pigment compositions (Column 2, lines 28-37).

Accordingly, it would have been obvious to use nigrosine as the dye in the microcapsules and to optimize the amount of dye used in the microcapsules given that the higher the concentration of the dye in the microcapsule the better the detection of the crack.

Response to Arguments

8. Applicant's arguments filed on September 21, 2006 have been fully considered but they are not persuasive. Applicants traverse the rejection of claims 1, 2, 4, 5, 9, 10, 12, and 14 under 35 U.S.C. 102(b) as being anticipated by Bilder et al. (US 5,534,289) and the rejection of claims 1, 2, 4-6, 9, 10, 12, 14-16, 18, and 20 under 35 U.S.C. 102(b) as being anticipated by Crites et al. (US 3,803,485) and submit that Bilder and Crites fail to teach a second transparent layer as claimed in present invention.

However, the Examiner disagrees. Page 16 of the Specification of the instant invention defines the term "transparent" to mean that the outermost layer is transparent

to such an extent as the state of at least the immediately underlying layer is visible and the layer may be colored. Hence, the term "transparent" as used in the instant claims does not require 100% transmission of light and simply requires that the layer is transparent to the extent that the immediately underlying layer is visible. The Examiner maintains that Bilder and Crites teach such a layer.

Applicants further traverse the rejection of claims 1-5, 7-14, and 16-20 under 35 U.S.C. 103(a) as being unpatentable over Bilder et al. (US 5,534,289) in view of Otsuka (US 4,624,709) and the rejection of claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Crites et al. (US 3,803,485) in view of Otsuka (US 4,624,709) and submit that Otsula is directed only to nigrosine dyes and is silent on the use of such dyes in a coating for inspection of fatigue cracks in a structure. In response to applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Otsuka discloses nigrosine dyes having a high compatibility with organic resins and solvents and that the nigrosine dyes can be used as providing high concentration dyeing solutions and providing pigment compositions.

Hence, the above rejections are maintained.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 6am to 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sheeba Ahmed
Art Unit 1773
December 4, 2006